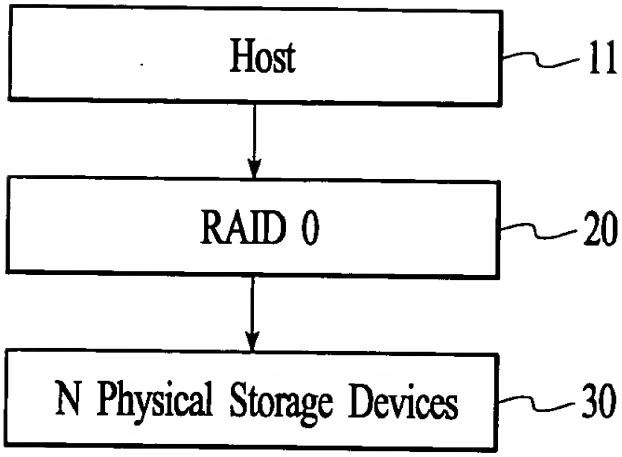
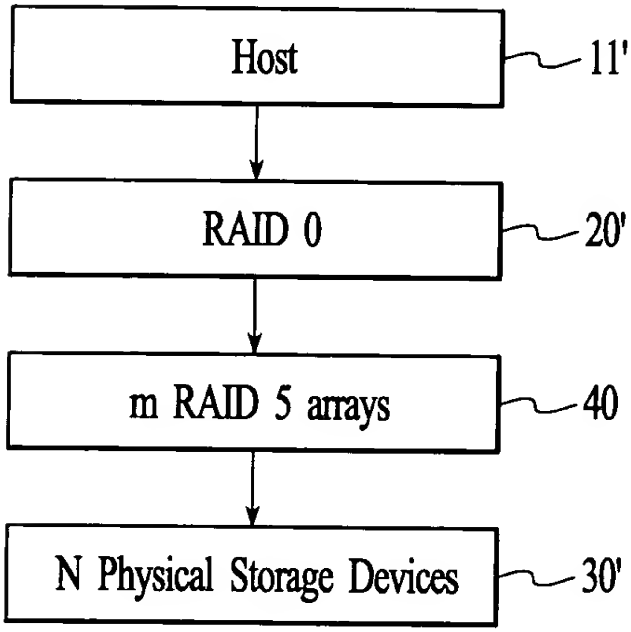
EP 2 026 194 A2



10

FIG. 1A



10'

FIG. 1B

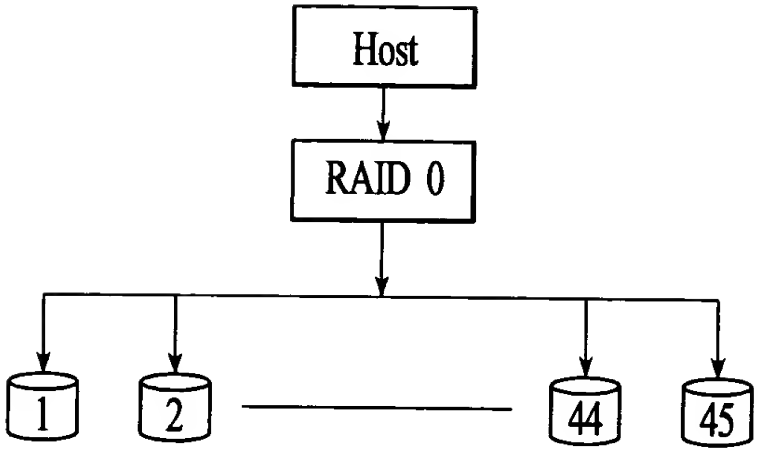


FIG. 2A

FOOT" 2226860

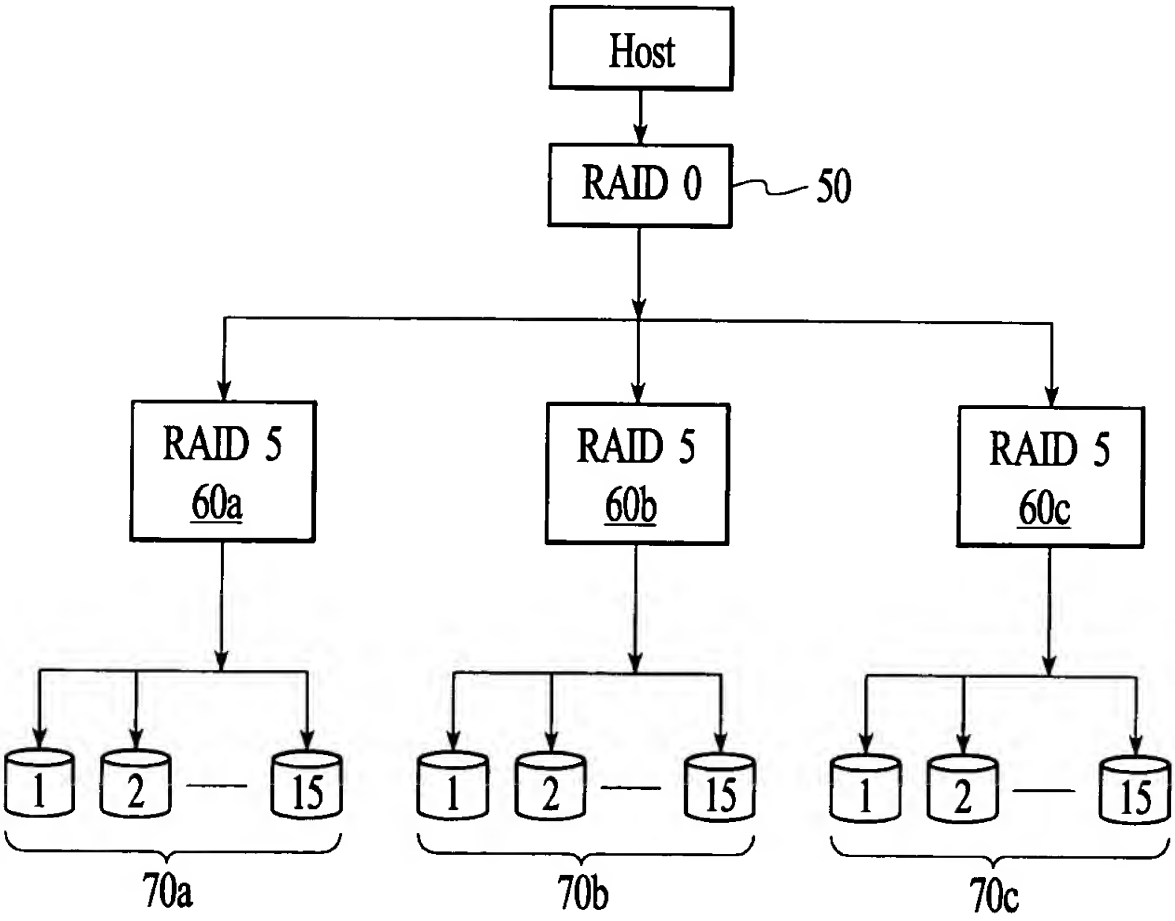


FIG. 2B

T0200T* 27E26860

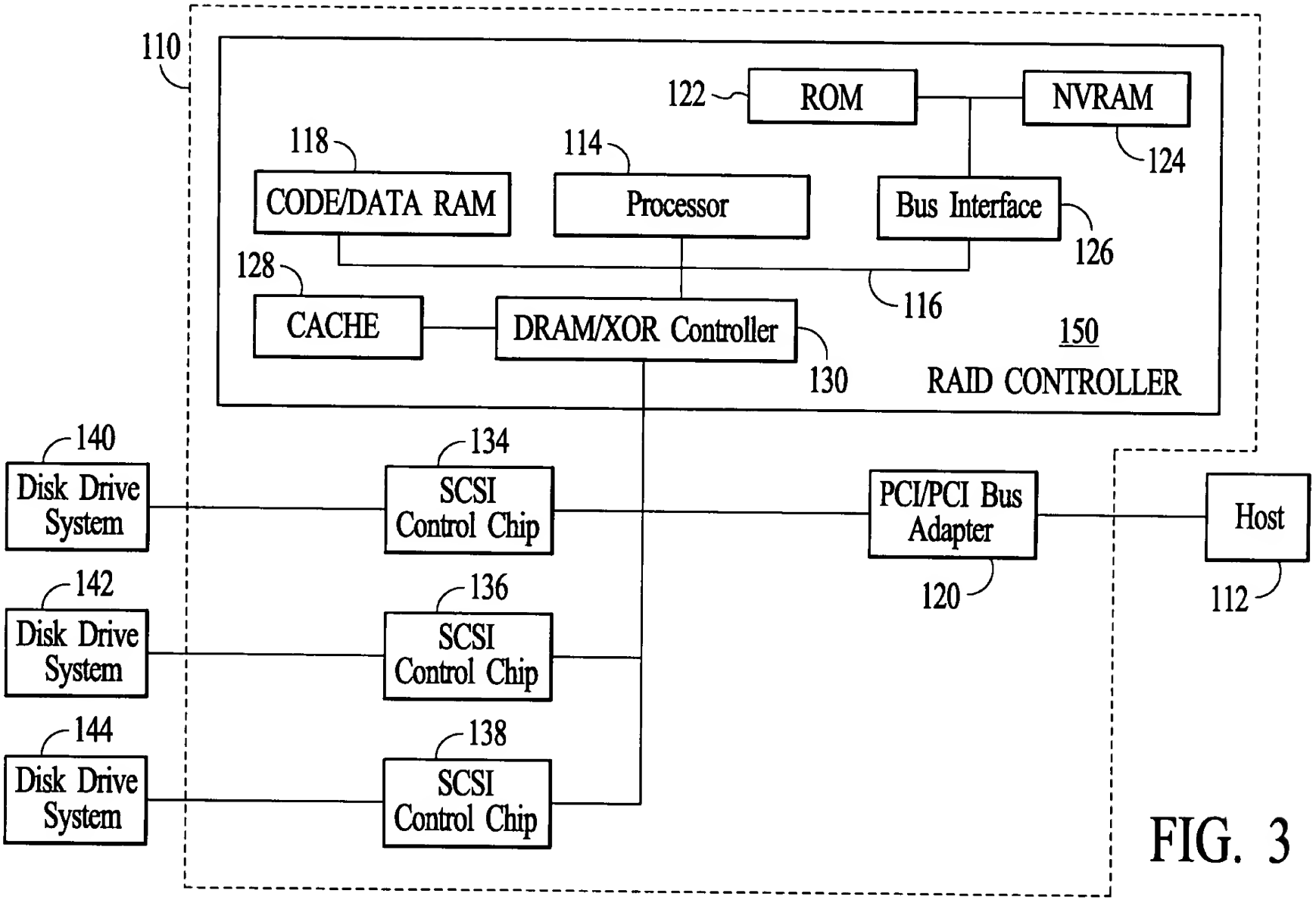


FIG. 3

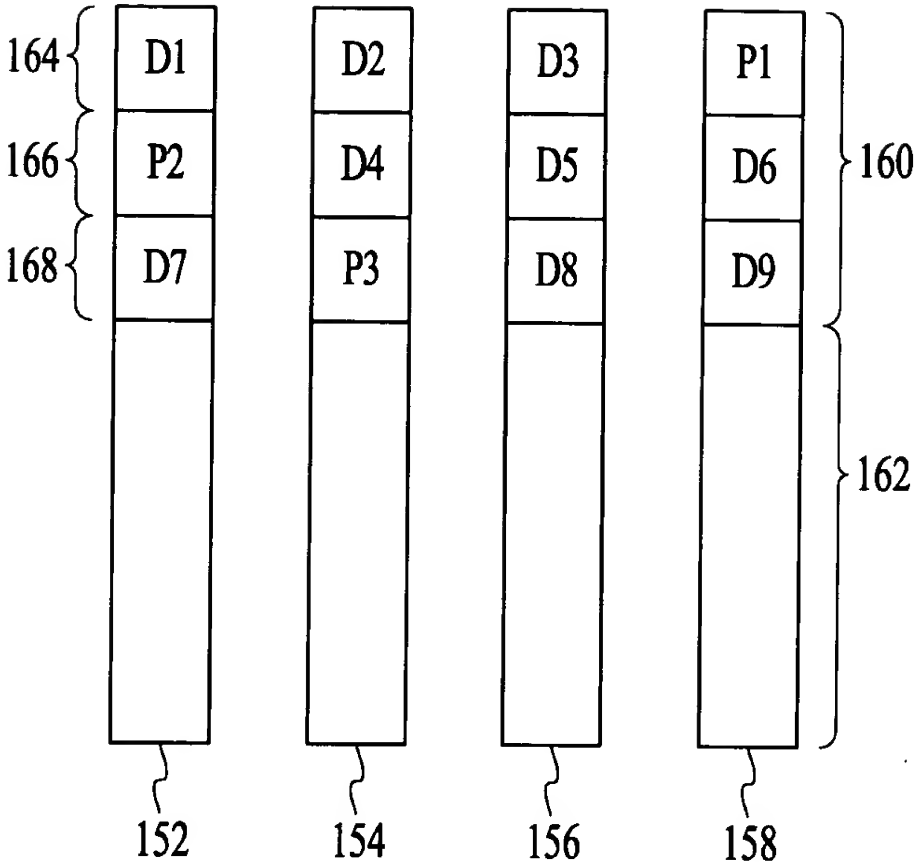


FIG. 4

EP 2 302 524 A2

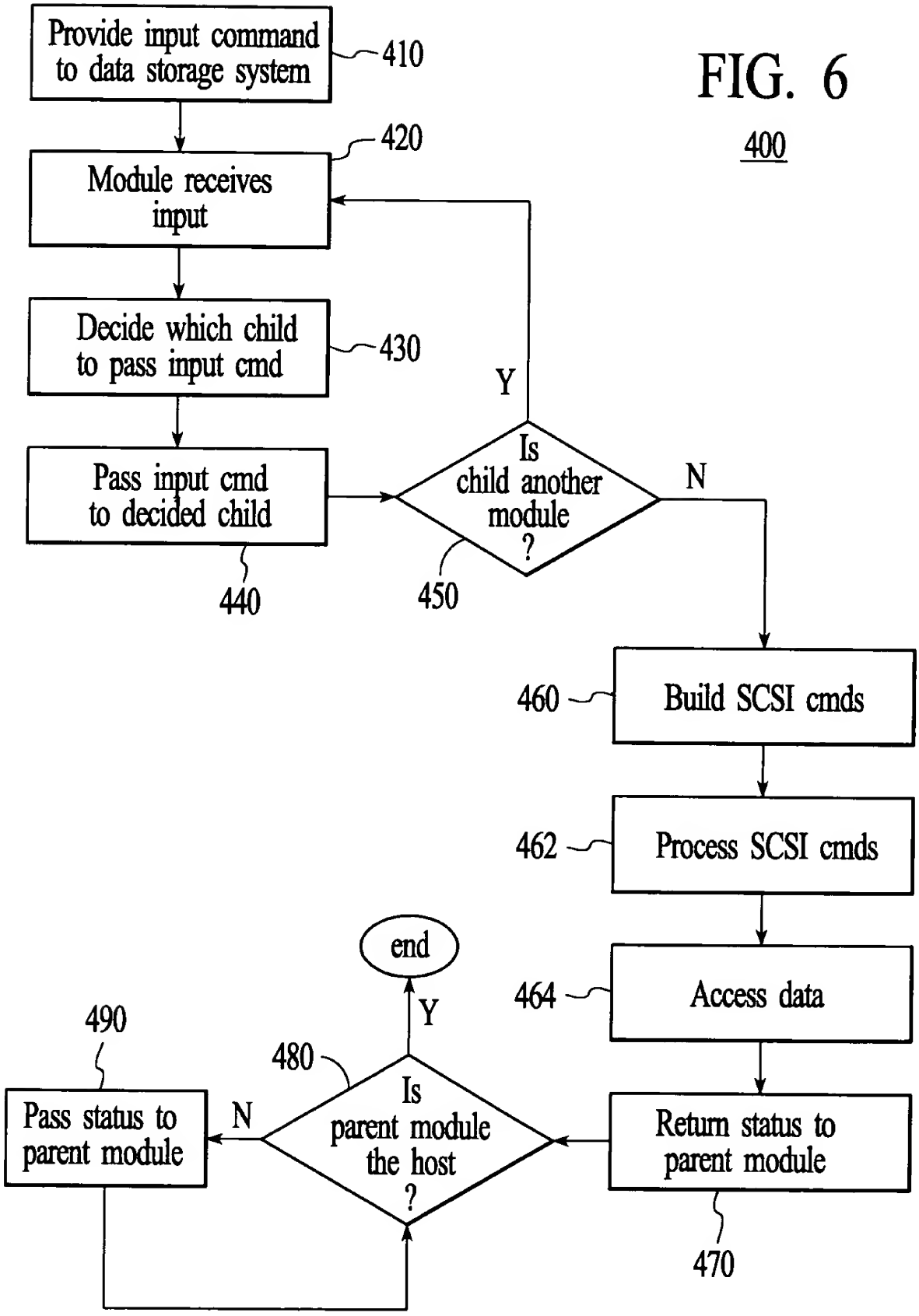
EP 0 720 084 A2

	D1 180	D2 182	D3 184	P1 186
Sector 0	S0	S0	S0	S0
	S1	S1	S1	S1
	S2	S2	S2	S2
	S3	S3	S3	S3
	S4	S4	S4	S4
	S5	S5	S5	S5
	S6	S6	S6	S6
	S7	S7	S7	S7
	S8	S8	S8	S8
	S9	S9	S9	S9
	S10	S10	S10	S10
	S11	S11	S11	S11
	S12	S12	S12	S12
	S13	S13	S13	S13
	S14	S14	S14	S14
Sector 15	S15	S15	S15	S15

FIG. 5

FIG. 6

400


Provide input command to data storage system
410
Module receives input
420
Decide which child to pass input cmd
430
Pass input cmd to decided child
440
Is child another module ?
450
Y
N
Build SCSI cmds
460
Process SCSI cmds
462
Access data
464
Return status to parent module
470
Is parent module the host ?
480
Y
N
end
Pass status to parent module
490

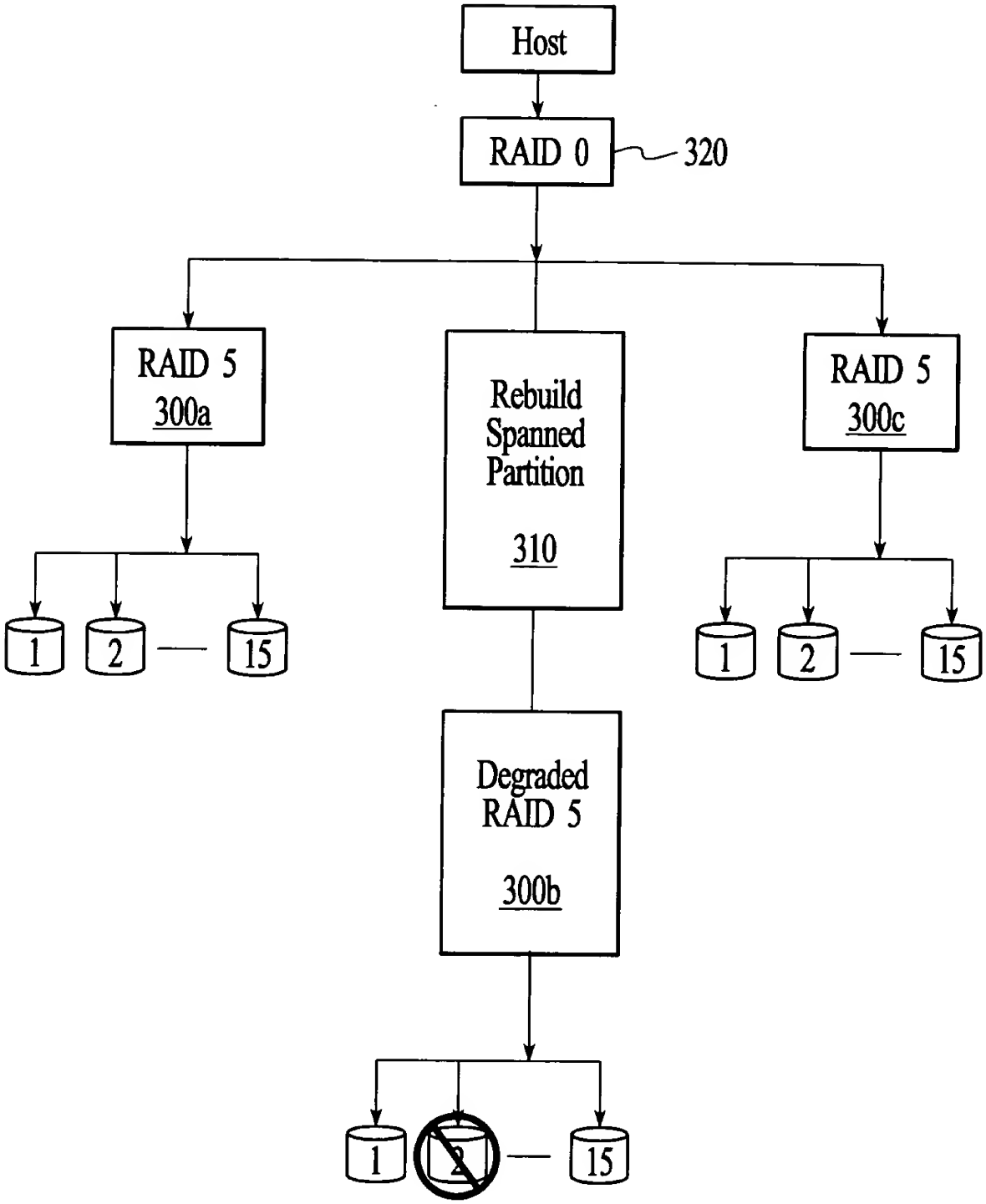

Host
RAID 0
320
RAID 5
300a
Rebuild
Spanned
Partition
310
RAID 5
300c
1
2
15
Degraded
RAID 5
300b
1
2
15

FIG. 7A

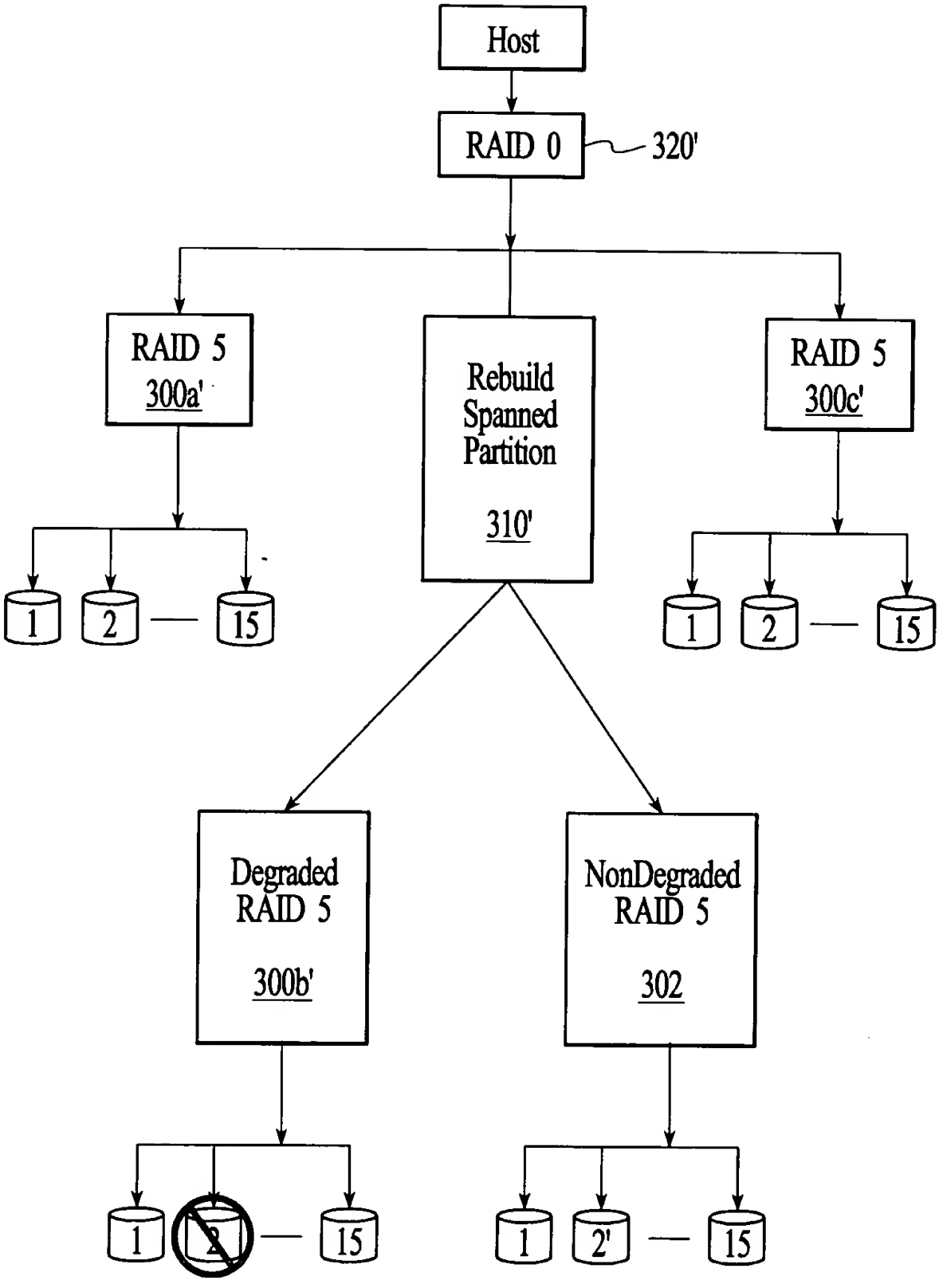

Host
RAID 0
320'
RAID 5
300a'
Rebuild
Spanned
Partition
310'
RAID 5
300c'
1
2
15
1
2
15
Degraded
RAID 5
300b'
NonDegraded
RAID 5
302
1
2
15
1
2'
15

FIG. 7B

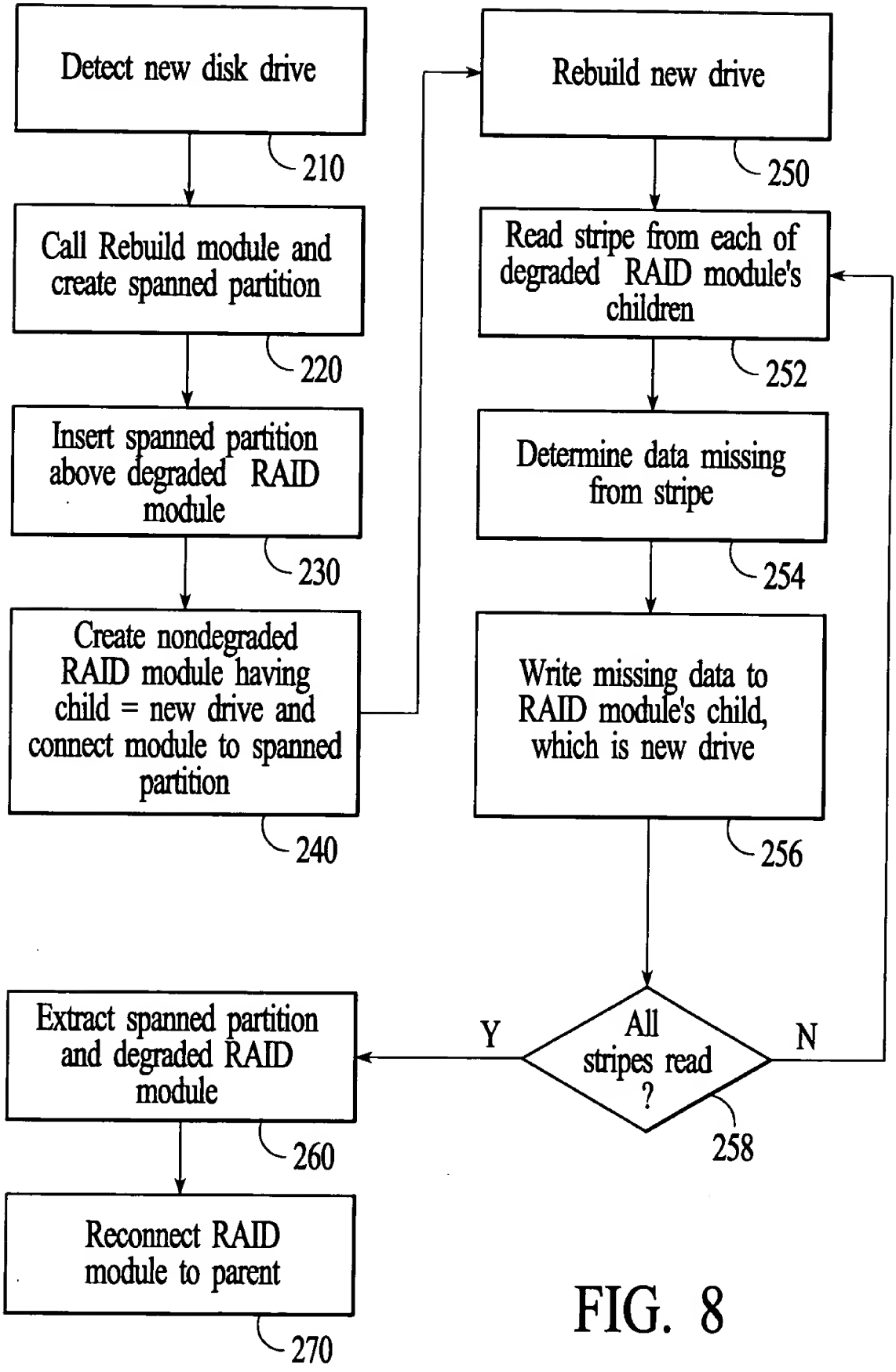

Detect new disk drive
210
Call Rebuild module and create spanned partition
220
Insert spanned partition above degraded RAID module
230
Create nondegraded RAID module having child = new drive and connect module to spanned partition
240
Rebuild new drive
250
Read stripe from each of degraded RAID module's children
252
Determine data missing from stripe
254
Write missing data to RAID module's child, which is new drive
256
All stripes read ?
258
Y
N
Extract spanned partition and degraded RAID module
260
Reconnect RAID module to parent
270

FIG. 8